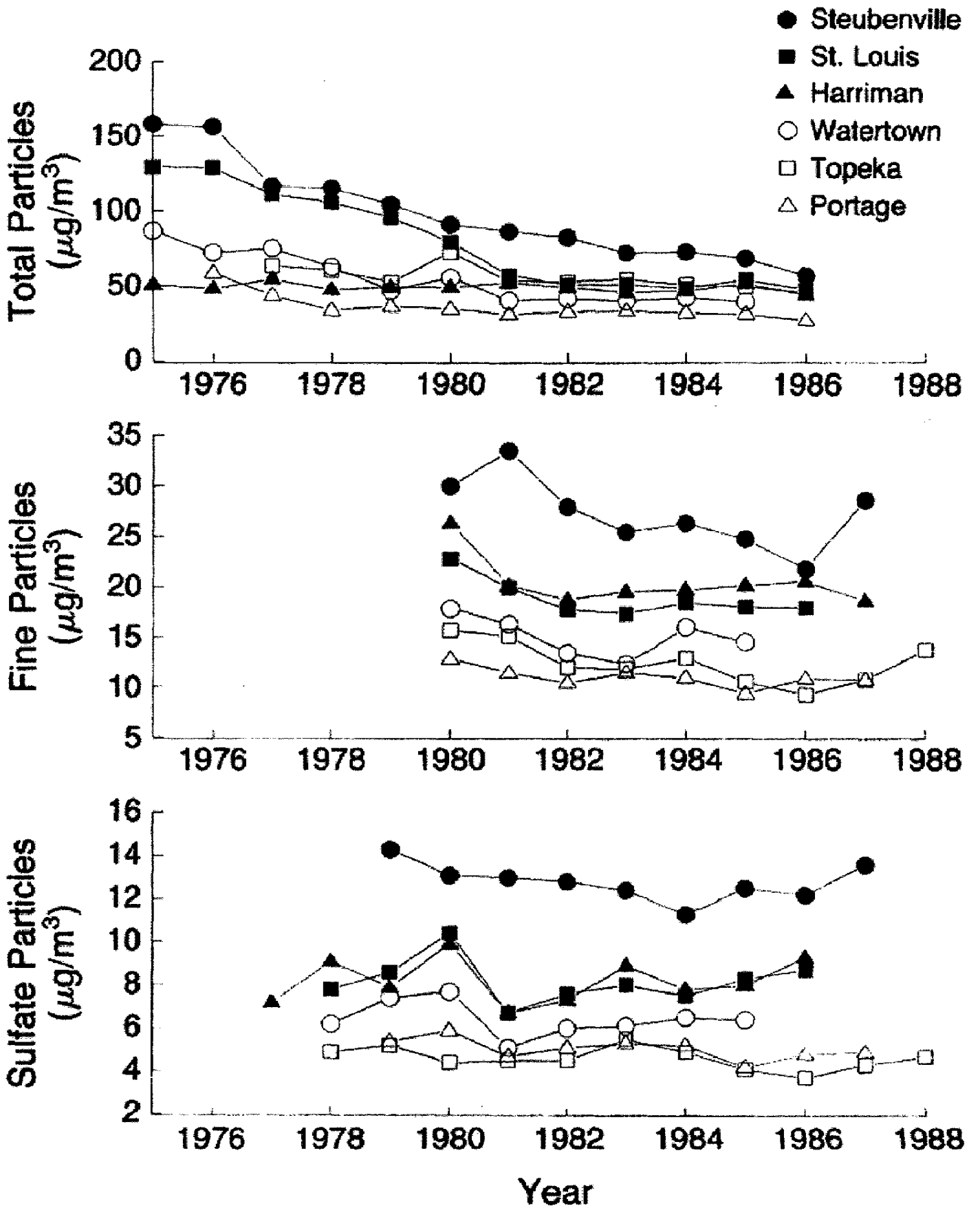
Characteristic	Portage, Wis.	Topeka, Kans.	Watertown, Mass.	Harriman, Tenn.	St. Louis	Steubenville, Ohio
No. of participants	1,631	1,239	1,336	1,258	1,296	1,351
Person-years of follow-up	21,618	16,111	19,882	17,836	17,715	17,914
No. of deaths	232	156	248	222	281	291
Deaths/1000 person-years	10.73	9.68	12.47	12.45	15.86	16.24
Female sex (%)	52	56	56	54	55	56
Smokers (%)	36	33	40	37	35	35
Former smokers (%)	24	25	25	21	24	23
Average pack-years of smoking						
Current smokers	24.0	25.6	25.2	24.5	30.9	28.0
Former smokers	18.0	19.7	21.8	21.1	22.0	25.0
Less than high-school education (%)	25	12	22	35	45	30
Average age (yr)	48.4	48.3	48.5	49.4	51.8	51.6
Average body-mass index	26.3	25.3	25.5	25.1	26.0	26.4
Job exposure to dust or fumes (%)	53	28	38	50	40	48
Total particles ($\mu g/m^3$)	34.1	56.6	49.2	49.4	72.5	89.9
Inhalable particles ($\mu g/m^3$)	18.2	26.4	24.2	32.5	31.4	46.5
Fine particles ($\mu g/m^3$)	11.0	12.5	14.9	20.8	19.0	29.6
Sulfate particles ($\mu g/m^3$)	5.3	4.8	6.5	8.1	8.1	12.8
Aerosol acidity ($nmol/m^3$)	10.5	11.6	20.3	36.1	10.3	25.2
Sulfur dioxide (ppb)	4.2	1.6	9.3	4.8	14.1	24.0
Nitrogen dioxide (ppb)	6.1	10.6	18.1	14.1	19.7	21.9
Ozone (ppb)	28.0	27.6	19.7	20.7	20.9	22.3

*Air-pollution values were measured in the following years: total particles, sulfur dioxide, nitrogen dioxide, and ozone, 1977 through 1985; inhalable and fine particles, 1979 through 1985; sulfate particles, 1979 through 1984; and aerosol acidity, 1985 through 1988.

Source: https://www.industrydocuments.ucsf.edu/docs/jngj0001



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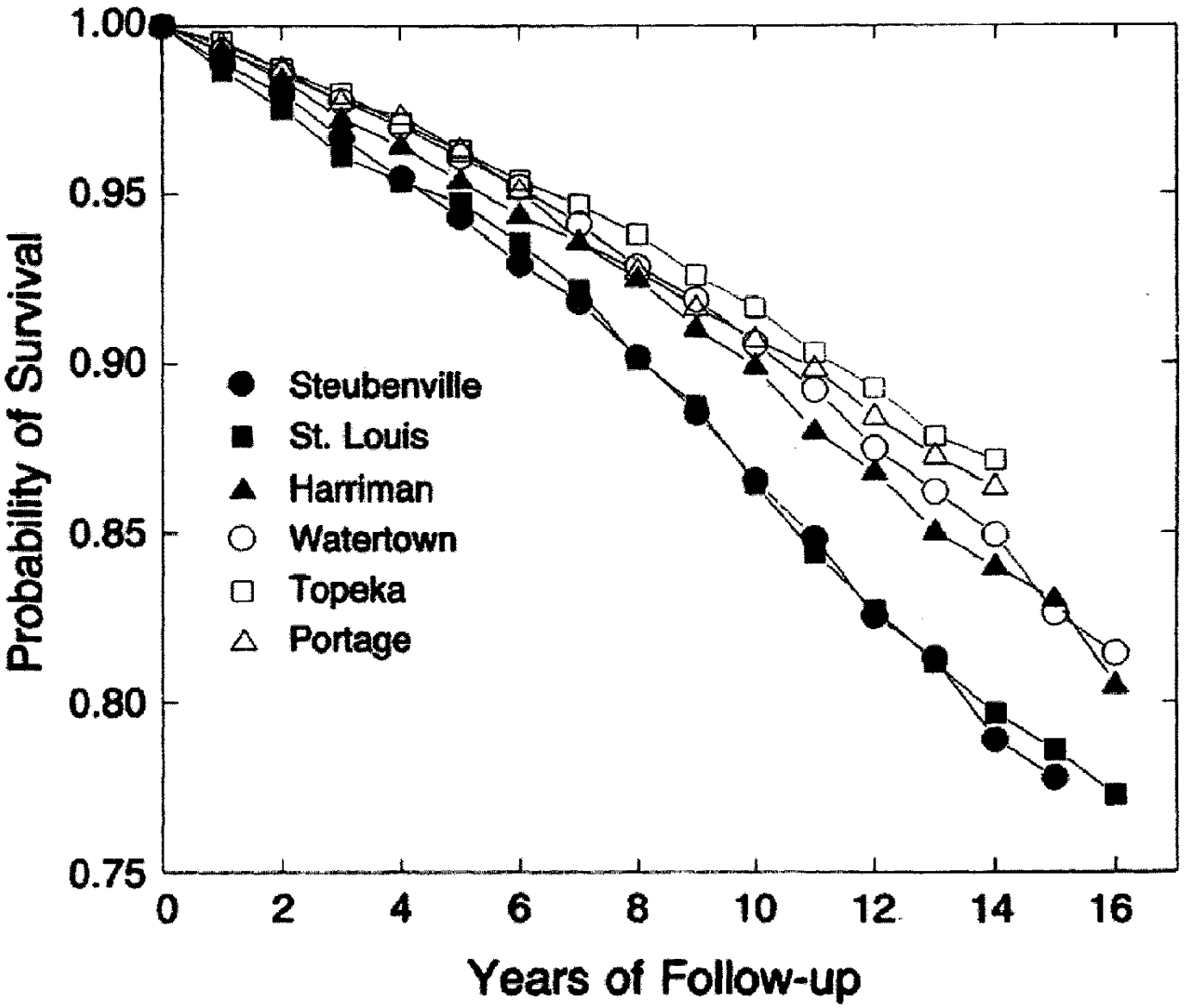
Source: https://www.industrydocuments.ucsf.edu/docs/jngj0001



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Source: https://www.industrydocuments.ucsf.edu/docs/jngj0001

VARIABLE	ALL SUBJECTS	MEN	WOMEN
		rate ratio (95% CI)	
Current smoker	1.59 (1.31–1.92)	1.75 (1.32–2.32)	1.54 (1.16–2.04)
25 Pack-years of smoking	1.26 (1.16–1.38)	1.25 (1.12–1.39)	1.18 (1.00–1.41)
Former smoker	1.20 (1.01–1.43)	1.17 (0.93–1.48)	1.34 (1.02–1.77)
10 Pack-years of smoking	1.15 (1.08–1.23)	1.16 (1.09–1.25)	1.15 (0.97–1.36)
Less than high-school education	1.19 (1.06–1.33)	1.22 (1.06–1.41)	1.13 (0.95–1.35)
Body-mass index	1.08 (1.02–1.14)	1.03 (0.95–1.12)	1.11 (1.03–1.20)
City			
Portage, Wis.†	1.00 (—)	1.00 (—)	1.00 (—)
Topeka, Kans.	1.01 (0.82–1.24)	1.04 (0.79–1.36)	0.97 (0.71–1.34)
Harriman, Tenn.	1.17 (0.97–1.41)	1.21 (0.96–1.54)	1.07 (0.79–1.45)
Watertown, Mass.	1.07 (0.89–1.28)	0.94 (0.73–1.20)	1.22 (0.93–1.61)
St. Louis	1.14 (0.96–1.36)	1.15 (0.91–1.44)	1.13 (0.86–1.50)
Steubenville, Ohio	1.26 (1.06–1.50)	1.29 (1.03–1.62)	1.23 (0.93–1.61)

*Rates have been adjusted for age, sex, and all other variables listed in the table. The rate ratios for body-mass index are for an increase of 4.52 (1 SD). CI denotes confidence interval.

†City-specific rate ratios are all expressed in relation to Portage.

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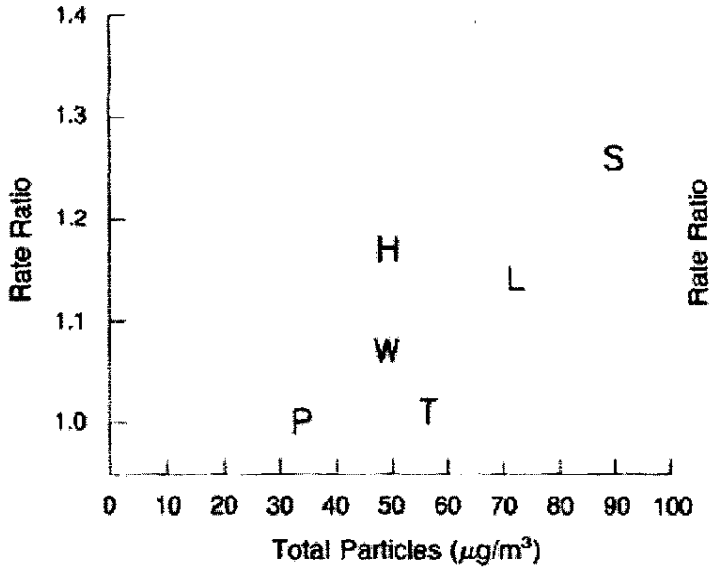
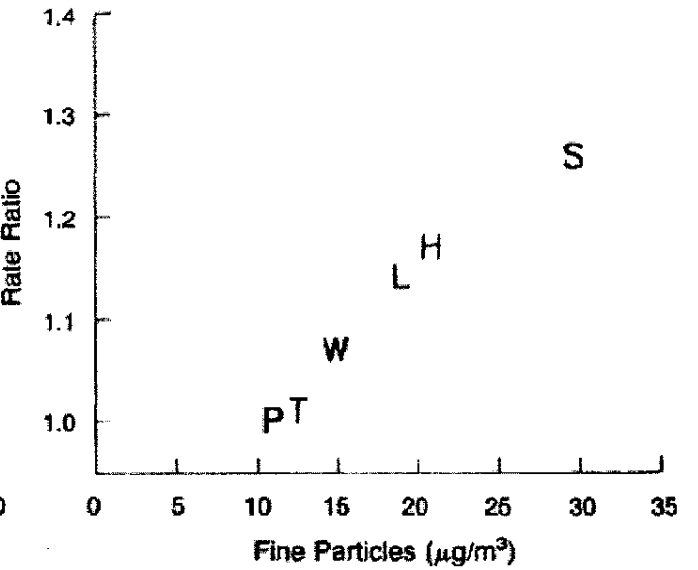
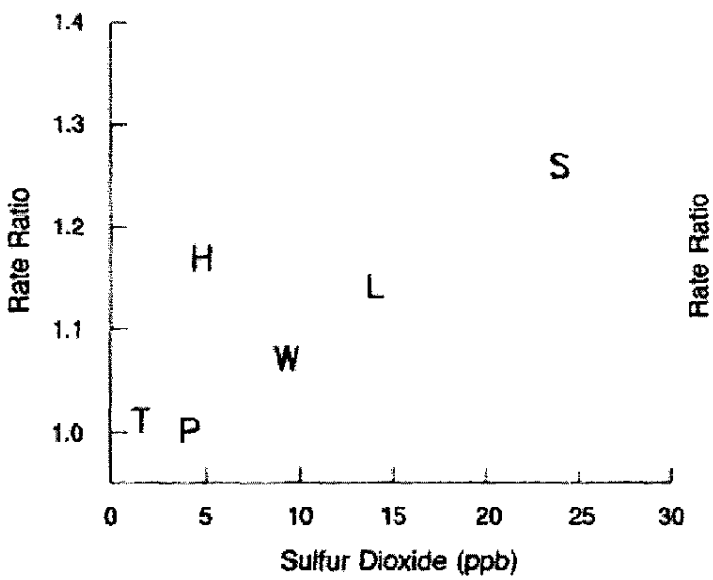
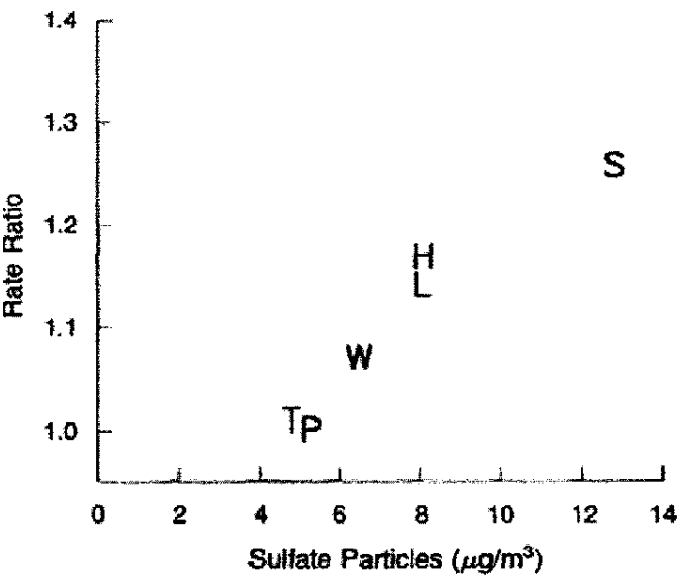
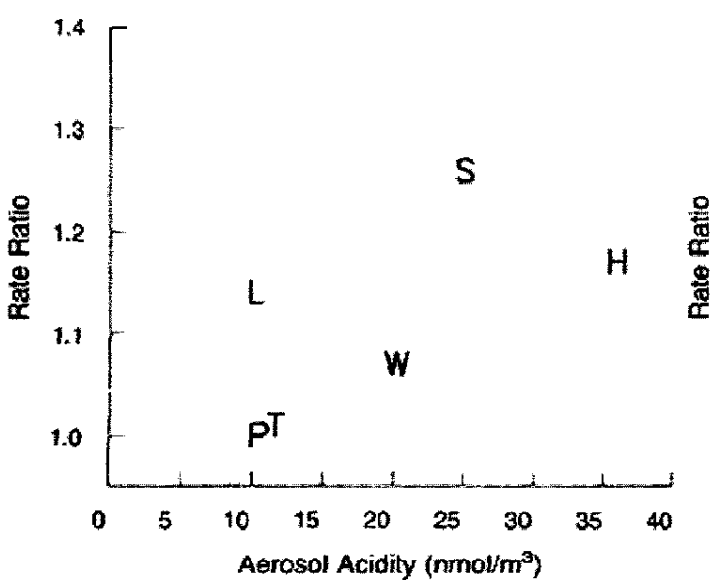
Source: https://www.industrydocuments.ucsf.edu/docs/jngj0001

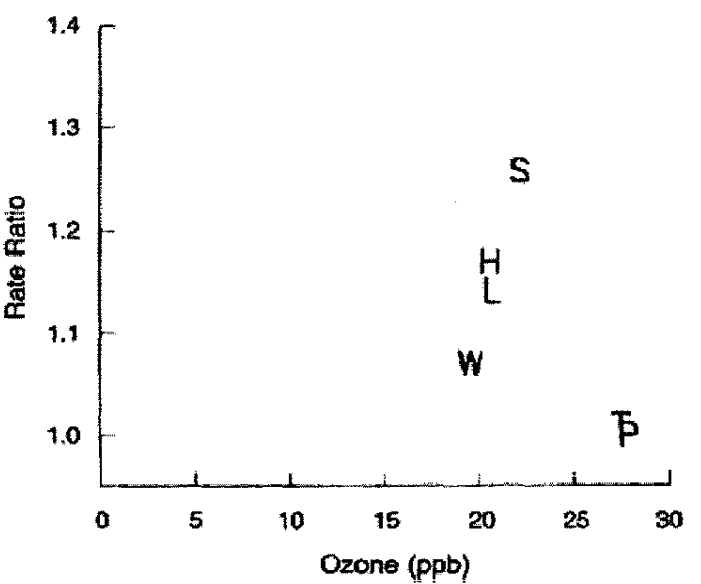












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Source: https://www.industrydocuments.ucsf.edu/docs/jngj0001

Group of Subjects	No. of Subjects	No. of Deaths	Rate Ratio (95% CI)†
All	8096	1429	1.26 (1.08–1.47)
Nonsmokers	3266	431	1.19 (0.90–1.57)
Women	2280	292	1.15 (0.82–1.62)
Men	986	139	1.29 (0.80–2.09)
Former smokers	1934	432	1.35 (1.02–1.77)
Women	670	106	1.48 (0.82–2.66)
Men	1264	326	1.31 (0.96–1.80)
Current smokers	2896	566	1.32 (1.04–1.68)
Women	1478	201	1.23 (0.83–1.83)
Men	1418	365	1.42 (1.05–1.92)
No occupational exposure‡	4455	686	1.17 (0.93–1.47)
Women	3151	417	1.13 (0.85–1.50)
Men	1304	269	1.27 (0.85–1.92)
Occupational exposure‡	3641	743	1.35 (1.10–1.65)
Women	1277	182	1.32 (0.86–1.50)
Men	2364	561	1.35 (1.07–1.69)

*The city with the highest level of fine-particulate air pollution was Steubenville, Ohio, and that with the lowest was Portage, Wisconsin. Rates have been adjusted for age, sex, smoking, education, and body-mass index. Fifteen subjects were excluded because of missing data on weight.

†CI denotes confidence interval.

‡To gases, fumes, or dust.

PM3006519078

Source: https://www.industrydocuments.ucsf.edu/docs/jngj0001

Model No.	Variables Included†	Rate Ratio (95% CI)‡
1	Fine particles	1.31 (1.13–1.52)
2	Model 1 + all smoking variables	1.29 (1.11–1.49)
3	Model 2 + high-school education	1.26 (1.08–1.47)
4	Model 3 + body-mass index	1.26 (1.08–1.47)
5	Model 4 + occupational exposure	1.26 (1.08–1.46)
6	Model 5, excluding 1439 subjects with hypertension	1.25 (1.04–1.50)
7	Model 5, excluding 561 subjects with diabetes	1.29 (1.09–1.52)

*The city with the highest level of fine-particulate air pollution was Steubenville, Ohio, and that with the lowest was Portage, Wisconsin. In addition to the variables specified, rates have been adjusted for age and sex.

†Subjects with hypertension were those who had been treated for high blood pressure within 10 years before enrollment; subjects with diabetes were those who had ever been told by a doctor that they had diabetes, had glucose in their urine, or had too much glucose in their blood.

‡CI denotes confidence interval.

Source: https://www.industrydocuments.ucsf.edu/docs/jngj0001

Cause of Death	Percentage of Total	Current Smokers†	Former Smokers‡	Most vs. Least Polluted City
			rate ratio (95% CI)	
All	100	2.00 (1.51–2.65)	1.39 (1.10–1.75)	1.26 (1.08–1.47)
Lung cancer	8.4	8.00 (2.97–21.6)	2.54 (0.90–7.18)	1.37 (0.81–2.31)
Cardiopulmonary disease	53.1	2.30 (1.56–3.41)	1.52 (1.10–2.10)	1.37 (1.11–1.68)
All others	38.5	1.46 (0.89–2.39)	1.17 (0.80–1.73)	1.01 (0.79–1.30)

*The city with the highest level of air pollution (indicated by the level of fine particles) was Steubenville, Ohio, and that with the lowest was Portage, Wisconsin. CI denotes confidence interval. Rates have been adjusted for age, sex, smoking, education, and body-mass index.

†The risk of death for a current smoker with approximately the average number of pack-years of smoking at enrollment (25 pack-years), as compared with that for a nonsmoker.

‡The risk of death for a former smoker with approximately the average number of pack-years of smoking at enrollment (20 pack-years), as compared with that for a nonsmoker.

Source: https://www.industrydocuments.ucsf.edu/docs/jngj0001